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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,368	12/12/2003	Charles Stanley Aldrich	2003-0377.02	1810

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EXAMINER

FIDLER, SHELBY LEE

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,368

Applicant(s)

ALDRICH ET AL. 

Examiner

Shelby Fidler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,10-15 and 18 is/are rejected.
- 7) ☒ Claim(s) 7-9,16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 6, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka et al. (US 6283577 B1) in view of Kanemura (US 6974201 B2).

Kosaka et al. teaches the following:

***regarding claim 1**, a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier (*carriage 4, Fig. 2*) that carries an ink jet printhead (*recording head 6, Fig. 2*), the ink jet printer having a waste ink receptacle (*case 7, Fig. 2*), comprising the steps of:

decelerating the printhead carrier from a first velocity (*col. 5, lines 18-20*) after printing print data (*col. 5, lines 20-25*); and

controlling a firing of the printhead during the decelerating (*col. 6, lines 20-24*) in accordance with maintenance data (*inherent to the flushing process*) so that ink droplets ejected from the printhead during the decelerating (*col. 6, lines 20-24*) are received by the waste ink receptacle (*col. 3, lines 52-56*)

***regarding claims 6 and 15**, the waste ink receptacle is positioned at a fixed location (*col. 3, lines 52-56*)

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***regarding claim 11**, a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier (*carriage 4, Fig. 2*) that carries an ink jet printhead (*recording head 6, Fig. 2*), the ink jet printer having a waste ink receptacle (*case 7, Fig. 2*), comprising the steps of:

accelerating the printhead carrier to a first velocity (*col. 5, lines 18-20*);

decelerating the printhead carrier during the maintenance segment (*col. 5, lines 20-25*);

and

controlling a firing of the printhead in accordance with data in the maintenance segment (*inherent to the flushing process*) so that ink droplets ejected from the printhead during the decelerating (*col. 6, lines 20-24*) are received by the waste ink receptacle (*col. 3, lines 52-56*)

***regarding claim 14**, print data segments and timing segments are serialized to the printhead when the printhead carrier is moving at the first velocity (*col. 6, lines 20-24 show that flushing occurs during deceleration, requiring that the data had been previously serialized. Figure 6 shows that the previous time was during travel at the first velocity*)

Kosaka et al. does not expressly teach the following:

***regarding claim 1**, the maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead; and

wherein a timing segment is interposed between the print data and the maintenance data

***regarding claim 11**, receiving print data in a form of print data segments;

generating a timing segment and a maintenance segment;

appending the timing segment and the maintenance segment to the print data;

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serializing the print data segments, the timing segment, and the maintenance segment to the printhead

Kanemura teaches the following:

***regarding claim 1**, the maintenance data (*data for preliminary discharge, ex. Y1d, Fig. 6a*) being appended to the print data (*Fig. 6a*) for a particular printing swath pass for serialization to the printhead (*D1 is read as the particular swath pass, Fig. 6a*); and

wherein a timing segment is interposed between the print data and the maintenance data (*blank data between D1 and Y1d, Fig. 6a*)

***regarding claim 11**, receiving print data in a form of print data segments (*data segments shown in Fig. 6a, e.g. D1, Y1d, D2, etc.*);

generating a timing segment (*blank data between D1 and Y1d, Fig. 6a*) and a maintenance segment (*Y1d, Fig. 6a*);

appending the timing segment (*e.g. Y1d*) and the maintenance segment (*unreferenced blank data*) to the print data (*blank data and Y1d are appended to D1, Fig. 6a*);

serializing the print data segments, the timing segment, and the maintenance segment to the printhead (*D1, blank data, and Y1d are serialized, Fig. 6a*)

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Kosaka et al.'s invention to append the maintenance data to the print data, and interpose a timing segment between the print data and the maintenance data. The motivation for doing so, as taught by Kanemura, is to ensure that printing beyond the capability of the power source is prevented (*col. 9, lines 15-19*)

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Claims 4, 5, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka et al. (US 6283577 B1) in view of Kanemura (US 6974201 B2), as applied to claim 1 above, and further in view of Enoto (US 4453166).

Kosaka et al. modified by Kanemura teaches all claimed limitations except for the following:

***regarding claims 4 and 12**, calculating the data length of the timing segment based on a length of the print data

***regarding claims 5 and 13**, the timing segment is composed of zeros data

Enoto teaches the following:

***regarding claims 4 and 12**, calculating the data length of the timing segment based on a length of the print data (*col. 3, lines 37-45 with Figure 2B shows that the timing segment is purposefully appended to the print data for output to the heaters, and was thus calculated*)

***regarding claims 5 and 13**, the timing segment is composed of zeros data (*Figure 2C*)

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the length of Kosaka et al.'s timing segment to be based on the print data. The motivation for doing so, as taught by Enoto, is to make the defective heating elements correspond to white bars and ensure continued printing without replacing a thermal head (*col. 2, lines 47-52*)

Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka et al. (US 6283577 B1) in view of Kanemura (US 6974201 B2), as applied to claims 1 and 11 above, and further in view of Drogo et al. (US 5528269).

Kosaka et al. modified by Kanemura teach all claimed limitations except for the following:

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***regarding claims 10 and 18**, the waste ink receptacle is positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media

Drogo et al. teaches the following:

***regarding claims 10 and 18**, the waste ink receptacle (*element 26*) is positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media (*Figure 2*)

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Kosaka et al. modified by Kanemura's invention to position the waste ink receptacle outside a print zone in relation to an edge of a sheet. The motivation for doing so, as taught by Drogo et al., is so that the controller knows to check for a new cartridge (*col. 5, lines 3-12*)

Allowable Subject Matter

Claims 7-9, and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reason for the indication of allowable subject matter of claims 7-9 is the inclusion of a method of performing maintenance firing including the method step of determining a length of the waste ink receptacle, which is positioned to begin at a predetermined location, is determined by the formula: $L = [(D_{gap}/V_d) \times V_c] + (N/D_{pi})$, wherein D_{gap} is a gap distance from the printhead to a surface of the waste ink receptacle; V_d is a droplet velocity of ink droplets ejected from the printhead; V_c is a carrier velocity of the

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printhead carrier; N is the number of spit fires per nozzle; and Dpi is the resolution. It is this step found in the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which indicates allowable subject matter.

The primary reason for the indication of allowable subject matter of claims 16 and 17 is the inclusion of a method of performing maintenance firing including the method step of determining a length of the waste ink receptacle, which is positioned to begin at a predetermined location, is determined by the formula: $L = [(D_{gap}/V_d) \times V_c] + (N/D_{pi})$, wherein D_{gap} is a gap distance from the printhead to a surface of the waste ink receptacle; V_d is a droplet velocity of ink droplets ejected from the printhead; V_c is a carrier velocity of the printhead carrier; N is the number of spit fires per nozzle; and Dpi is the resolution. It is this step found in the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which indicates allowable subject matter.

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Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on MWF 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SLF

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PRIMARY EXAMINER